

March 15, 2023

Mr. Robert Kondreck  
On-Scene Coordinator  
U.S. Environmental Protection Agency, Region 5  
77 West Jackson Boulevard  
Chicago, Illinois 60604

**Subject:       Emergency Response Report – Revision 1  
                  La Salle Chemical Fire Site – ER  
                  La Salle, La Salle County, Illinois  
                  EPA Contract Number: 68HE0519D0005  
                  Task Order – Task Order Line-Item Number (TO-TOLIN): F0032-0001EA102  
                  Document Tracking Number: 1622a**

Dear Mr. Kondreck:

The Tetra Tech, Inc. Superfund Technical Assessment and Response Team hereby submits this revised emergency response report for the La Salle Chemical Fire Site (the Site)—in La Salle, La Salle County, Illinois. This report summarizes the emergency response activities conducted at the Site from January 11 through January 13, 2023, and incorporates comments received from you on February 22, 2023.

If you have any questions regarding this report, please contact me at (312) 201-7763 or via email at [alexis.enright@tetrattech.com](mailto:alexis.enright@tetrattech.com).

Respectfully,



Alexis Enright  
Project Manager

Enclosure

cc:       TO-TOLIN file  
          Karl Schultz, Tetra Tech Program Manager

# EMERGENCY RESPONSE REPORT

## LA SALLE CHEMICAL FIRE SITE – ER

### LA SALLE, LA SALLE COUNTY, ILLINOIS

Revision 1  
March 15, 2023

*Prepared for:*



U.S. Environmental Protection Agency, Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604

*Submitted by:*



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EPA Contract Number:

68HE0519D0005

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## ATTACHMENT

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### Attachment 1. Interagency Modeling and Atmospheric Assessment Center Reports



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## 1. INTRODUCTION

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The U.S. Environmental Protection Agency (EPA) tasked the Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) to perform emergency response activities associated with a fire that began on January 11, 2023, at the Carus Chemical Company (Carus) facility in La Salle, La Salle County, Illinois. Emergency response activities at the Site were authorized under EPA Contract 68HE0519D0005, Task Order – Task Order Line-Item Number (TO-TOLIN) F0032-0001EA102.

In accordance with the TO-TOLIN, EPA tasked START with following emergency response activities:

- Develop a site-specific air monitoring and sampling plan (Tetra Tech 2023a) and health and safety plan (Tetra Tech 2023b)
- Maintain a logbook and collect photographic documentation of onsite activities
- Perform air monitoring as needed
- Collect and analyze samples as needed
- Perform data validation of laboratory analytical results as needed
- Develop and submit a letter report summarizing the emergency response activities

In this report, Section 2 summarizes the Site background, Section 3 describes emergency response activities—including initial oversight and community air monitoring—and Section 4 summarizes the response activities. Additionally, Section 5 lists all references cited throughout this report.

For further information, this report contains four appendices and one attachment. Appendix A contains relevant figures. Appendix B contains summary tables for daily air monitoring results. Appendix C contains a photographic log of emergency response activities, and Appendix D contains START logbook notes. Lastly, Attachment 1 contains Interagency Modeling and Atmospheric Assessment Center (IMAAC) reports.

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## 2. SITE BACKGROUND

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The following sections describe the Site and its location, discuss initial response activities, and describe the organization of the response.

### 2.1. SITE LOCATION AND DESCRIPTION

The Site is at 1500 8<sup>th</sup> Street in La Salle, La Salle County, Illinois (Appendix A, Figure 1). Coordinates at its approximate center are 41.3368590 degrees north latitude, -89.0858910 degrees west longitude. The facility is less than 0.5 mile west of the Little Vermillion River, which flows into the Illinois River approximately 1 mile downstream from the facility.

The Site is in a mixed-use area with light industrial, commercial, and residential properties (Appendix A, Figure 2). The northern and southern edges of the Site are bounded by 9<sup>th</sup> Street and 7<sup>th</sup> Street, respectively, with commercial and industrial properties beyond. The Matthiessen and Hegeler Superfund Site is located north of the Site and has ongoing remediation activities. The eastern side of the Site is bounded by the Little Vermillion River, and the western side is bounded by Sterling Street with residential properties and an adjacent park. The closest residential property is approximately 100 feet from the Site. Surface runoff from the Site drains to the east and south; runoff is collected by the municipal stormwater sewer system and an onsite containment pond before being discharged into the Little Vermillion River. Typically, the onsite containment pond received stormwater runoff from paved areas at the facility.

### 2.2. INITIAL RESPONSE ACTIVITIES

On January 11, 2023, at approximately 09:00 (National Response Center 2023), an explosion occurred at the Carus facility in La Salle, Illinois. The plant manufactures water treatment and pollution control chemicals. The plant was evacuated, and the local police department issued a shelter-in-place order surrounding the plant. The La Salle Fire Department (LFD) then responded to the fire and initiated fire suppression activities at the Site. The La Salle County Emergency Management Agency (EMA) and Illinois Environmental Protection Agency (IEPA) requested EPA's assistance with air monitoring. The smoke plume from the fire was deemed a threat to the surrounding community due to the potential release of smoke and contaminants into the atmosphere. There was the risk of exposure to strong oxidizers—such as potassium permanganate—which creates a caustic mixture when combined with water.



On January 11, 2023, at approximately 10:00, EPA contacted START to respond to the incident. On-Scene Coordinator (OSC) Robert Kondreck mobilized to the Site at 14:00. START arrived at 15:00 and received a briefing and tasking from the OSC. EPA tasked START to conduct air monitoring at discrete locations throughout the community.

## 2.3. RESPONSE ORGANIZATION

The LFD and La Salle Police Department responded to the incident and conducted fire suppression and public safety activities. The LFD fire chief operated as incident commander (IC) and remained in control of the Site through the emergency phase of the incident.

EPA, IEPA, and the La Salle County EMA coordinated oversight of emergency response activities. EPA also consulted with the U.S. Coast Guard, Illinois Department of Public Health (IDPH), La Salle County Health Department, La Salle County EMA, and Carus. Finally, EPA tasked START to conduct oversight of emergency response activities and air monitoring. See Table 1 for a list of emergency response parties.

**Table 1 — Site Emergency Response Parties**

Party	Contacts	Description of Participation
La Salle Fire Department	Fire Chief Jerry Janick	Fire department involved in the initial fire control; acting incident commander during the initial response (additional community fire departments provided mutual assistance during the fire incident)
U.S. EPA, Region 5	Robert Kondreck, OSC Paul Ruesch, OSC	Safety officer to the incident commander throughout emergency response activities
U.S. Coast Guard	NA	Department providing environmental impact consultation for the Little Vermillion River
City of La Salle	Brent Bader	Representing the City of La Salle during emergency response activities
La Salle Police Department	NA	Police department involved in evacuation and site control/security activities
Illinois Conservation Police	Phil Wire	Providing environmental impact consultation for the Little Vermillion River and biological impacts
Illinois Department of Natural Resources	Stuart Fraser	Department providing environmental impact consultation for the Little Vermillion River
Illinois EPA Office of Emergency Response	Tony Falconio	Coordinators of oversight for the emergency response activities
Illinois Emergency Management Agency	Kathy Spellman	Coordinators of oversight for the emergency response activities

Party	Contacts	Description of Participation
Illinois Department of Public Health	Aaron Martin	Department providing health consultation for the emergency response activities
La Salle County Health Department	Christine Pozzi	Department providing health consultation for the emergency response activities
La Salle County Emergency Management Agency	Fred Moore	Coordinators of oversight for the emergency response activities
Tetra Tech START	Alexis Enright Helen Fournet	EPA contractor, performing oversight of emergency response activities and air monitoring
Carus, LLC	Joe McNamara	Potentially responsible party providing facility-specific information

**Acronyms:**

- EPA: Environmental Protection Agency
- NA: not available
- OSC: on-scene coordinator
- START: Superfund Technical Assessment and Response Team



### 3. EMERGENCY RESPONSE ACTIVITIES

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START conducted emergency response activities at the Site from January 11 through January 13, 2023, including oversight and documentation of emergency response activities as well as community air monitoring. Emergency response activities are described in the following subsections, and a photographic log is provided in Appendix C.

#### 3.1. SITE RESPONSE OPERATIONS

On January 11, 2023, START arrived at the Site at 15:00, met with EPA at the staging area at the intersection of 8<sup>th</sup> Street and Sterling Street, and discussed Site activities.

Approximately 1,089,400 pounds of potassium permanganate were stored inside the shipping warehouse where the fire occurred. As a result of the fire, potassium permanganate product and byproduct became airborne and deposited in the form of granules around the facility. Firefighting crews used water to suppress the fire, resulting in potassium permanganate being released into the facility's storm sewer system, which was diverted to an emergency containment pond after elevated pH and chemical levels were detected by a monitoring station.

When potassium permanganate is involved in a fire, it may oxidize to form different types of manganese oxides that appear black, brown, or green depending on the oxidation state. START observed and documented discoloration on nearby homes, cars, and other properties while conducting field reconnaissance.

IEPA collected surface-water samples, wipe samples, and material from the Site. Surface-water samples were collected from the Little Vermillion River, containment pond, and the storm sewer outfall location. Wipe samples were collected from nearby residences. Material from the Site consisted of substances that were involved in the fire. Surface-water and wipe samples were also collected from inside the facility; IEPA intended to analyze the samples for inorganic and organic parameters.

IEPA also investigated reports of purple discoloration of the Little Vermillion River. The Illinois Department of Natural Resources (DNR) monitored the river for discoloration and environmental impact (specifically, fish or animal deaths). The Illinois DNR did not identify discoloration or environmental impacts.



### 3.2. COMMUNITY AIR MONITORING

On January 11, 2023, EPA and START conducted an initial site reconnaissance to inspect the incident area and establish perimeter air monitoring locations based on IMAAC plume models that track both the direction of the smoke plume from the facility and the particulate levels (Attachment 1).

EPA tasked START with the following air monitoring objectives: (1) document and assess the possibility of offsite migration of airborne contaminants; (2) document and assess risks to public health; and (3) evaluate the need for enhanced firefighting or plume control measures. To achieve the objectives, START used a Honeywell MultiRAE Pro to monitor concentrations of volatile organic compounds (VOCs); the lower explosive limit (LEL); and carbon monoxide (CO), hydrogen sulfide (H<sub>2</sub>S), hydrogen cyanide (HCN), and oxygen (O<sub>2</sub>) levels. START also used a handheld DustTrak HDRX Aerosol Monitor (HDRX) to monitor various size fractions of particulate matter and two Honeywell SPM Flex Gas Detectors (SPM Flex units) to monitor for hydrochloric acid (HCl) and chlorine (Cl<sub>2</sub>).

From January 11 through January 13, 2023, START conducted roaming ambient air monitoring at fixed, discrete locations in accordance with the Site-specific air monitoring and sampling plan (Tetra Tech 2023a). Mobile air monitoring measurements at each monitoring location were recorded in the field using Survey123 and uploaded to provide EPA with a real time-viewing of monitoring results. Mobile air monitoring was conducted along Transects A and B. Based on the IMAAC plume model and field judgement, no measurements were taken along Transect C. Figure 3 in Appendix A shows for monitoring locations, and Appendix B includes daily air monitoring results. Site-specific action levels included those for Cl<sub>2</sub>, CO, H<sub>2</sub>S, HCl, HCN, LEL, O<sub>2</sub>, VOCs, particulate matter with an aerodynamic diameter equal to or less than 2.5 micrometers (PM<sub>2.5</sub>), and particulate matter with an aerodynamic diameter equal to or less than 10 micrometers (PM<sub>10</sub>). Site-specific action levels and associated instrumentation used during emergency response activities are summarized in Table 2.

Air monitoring was discontinued on January 13, 2023, after the LFD declared that the fire was fully extinguished and there were no apparent odors, vapors, or other emissions outside the plant.

**Table 2 — Site-Specific Air Monitoring Action Levels**

Instrument(s)	Analyte	Site-Specific Action Level <sup>1</sup>
MultiRAE Pro	CO	25 ppm
MultiRAE Pro	H <sub>2</sub> S	10 ppm
MultiRAE Pro	HCN	5 ppm
MultiRAE Pro	LEL	5%
MultiRAE Pro	O <sub>2</sub>	19.5% to 23.5%
MultiRAE Pro	VOCs	0.5 ppm
SPM Flex	Cl <sub>2</sub>	0.5 ppm
SPM Flex	HCl	2.5 ppm
Handheld DustTrak DRX	PM <sub>2.5</sub>	2.5 mg/m <sup>3</sup>
Handheld DustTrak DRX	PM <sub>10</sub>	2.5 mg/m <sup>3</sup>

**Notes:**

1. Site-specific screening levels are based on 1-hour, time-weighted averages.

**Acronyms:**

- %: percent
- Cl<sub>2</sub>: chlorine
- CO: carbon monoxide
- H<sub>2</sub>S: hydrogen sulfide
- HCl: hydrochloric acid
- HCN: hydrogen cyanide
- LEL: lower explosive limit
- mg/m<sup>3</sup>: milligrams per cubic meter
- O<sub>2</sub>: oxygen
- PM<sub>2.5</sub>: particulate matter with a diameter of 2.5 micrometers or less
- PM<sub>10</sub>: particulate matter with a diameter of 10 micrometers or less
- ppm: parts per million
- VOCs: volatile organic compounds



## 4. SUMMARY OF RESPONSE ACTIVITIES

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On January 11, 2023, at approximately 09:00, LFD was called to address a fire at the Carus facility, which manufactures environmental products, including potassium permanganate. The La Salle Fire and Police Departments issued a shelter-in-place order for the area surrounding the Site. EPA, IEPA, and START responded to conduct emergency response activities. From January 11 through January 13, 2023, START conducted oversight of emergency response operations, documentation, and air monitoring. Appendix C provides the photographic documentation log, and Appendix D includes START field logbook notes.

Below is a summary of START's emergency response activities:

- On January 11, 2023, START deployed to the Carus facility in La Salle, Illinois and conducted an initial site reconnaissance where discoloration on homes and property was observed. START began roaming air monitoring at discrete locations using a MultiRAE Pro, DustTrak HDRX, and two SPM Flex units to collect ambient air data throughout the community. Over a period of 2 days, START adjusted mobile air monitoring following fire suppression activities by local fire departments and changes in wind direction. START continued periodic roaming air monitoring data collection during 12-hour periods and recorded them in nearly real time via Survey123.
- On January 12, 2023, START revisited properties to review the status of stains and deposits. START continued roaming air monitoring until the fire was fully extinguished and continued to document Site conditions. START discussed air monitoring goals and provided oversight as air monitoring activities were transitioned to Carus. START assisted EPA with an incident transition plan and updates to the response website.
- Finally, on January 13, 2023, START assessed claims of discolored snow near residential properties. START participated in a site walk with EPA, Carus, and the Illinois DNR to document the Site and area conditions. START then demobilized from the Site.

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## 5. REFERENCES

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National Response Center. 2023. "Incident Report # 1357481." January 12.

Tetra Tech. 2022. "Quality Assurance Project Plan." Superfund Technical Assessment and Response Team (START V), Contract 68HE0519D0005, U.S. Environmental Protection Agency, Region 5. Revision 4. August.

Tetra Tech. 2023a. "Air Monitoring and Sampling Plan, La Salle Chemical Fire ER." Revision 0. January 11.

Tetra Tech. 2023b. "Health and Safety Plan, La Salle Chemical Fire ER." Revision 0. January 11.

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## APPENDIX A. FIGURES

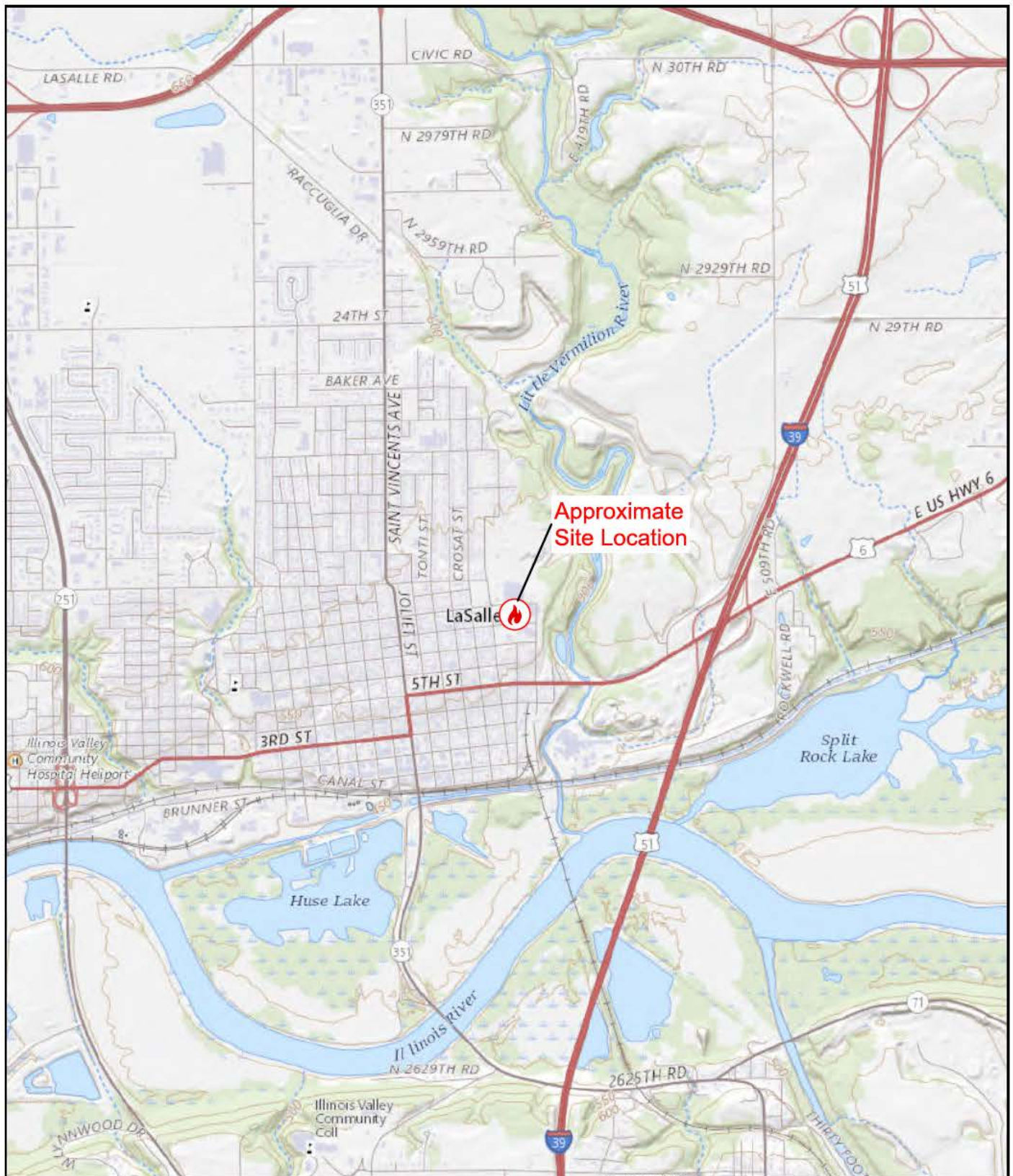
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**Figure 1 — Site Location Map**

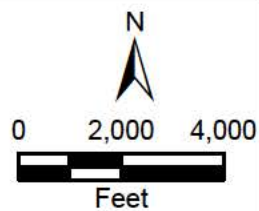
**Figure 2 — Site Layout Map**

**Figure 3 — Roaming Air Monitoring Locations**





## Legend



Source: USGS TopoMaps

La Salle Chemical Fire - ER  
La Salle, La Salle, County, Illinois

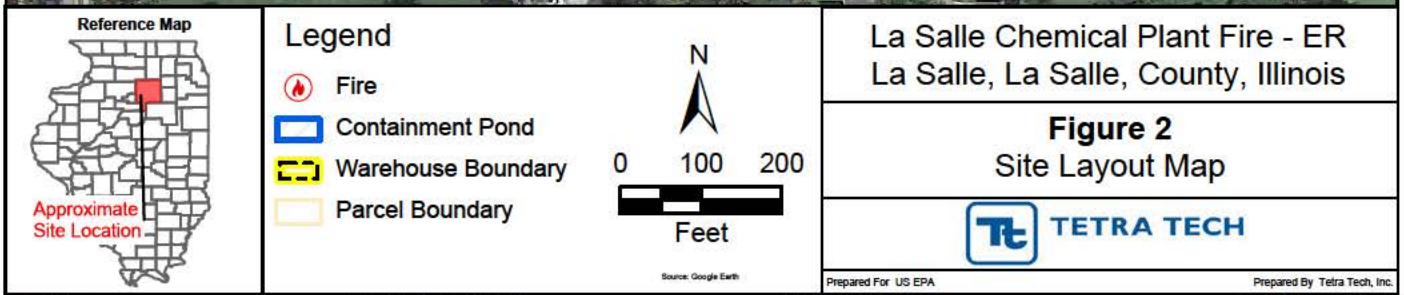
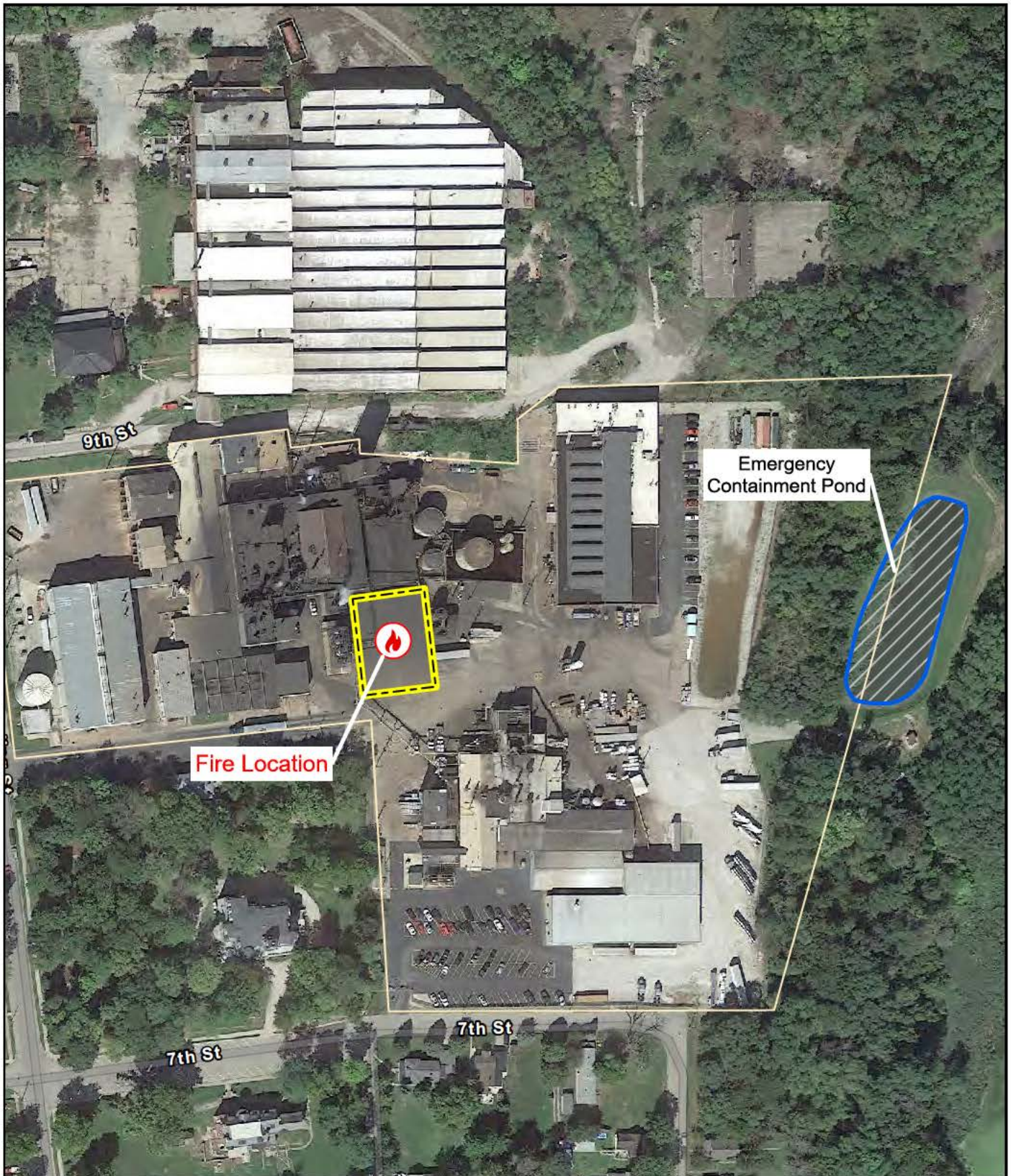
**Figure 1**  
Site Location Map



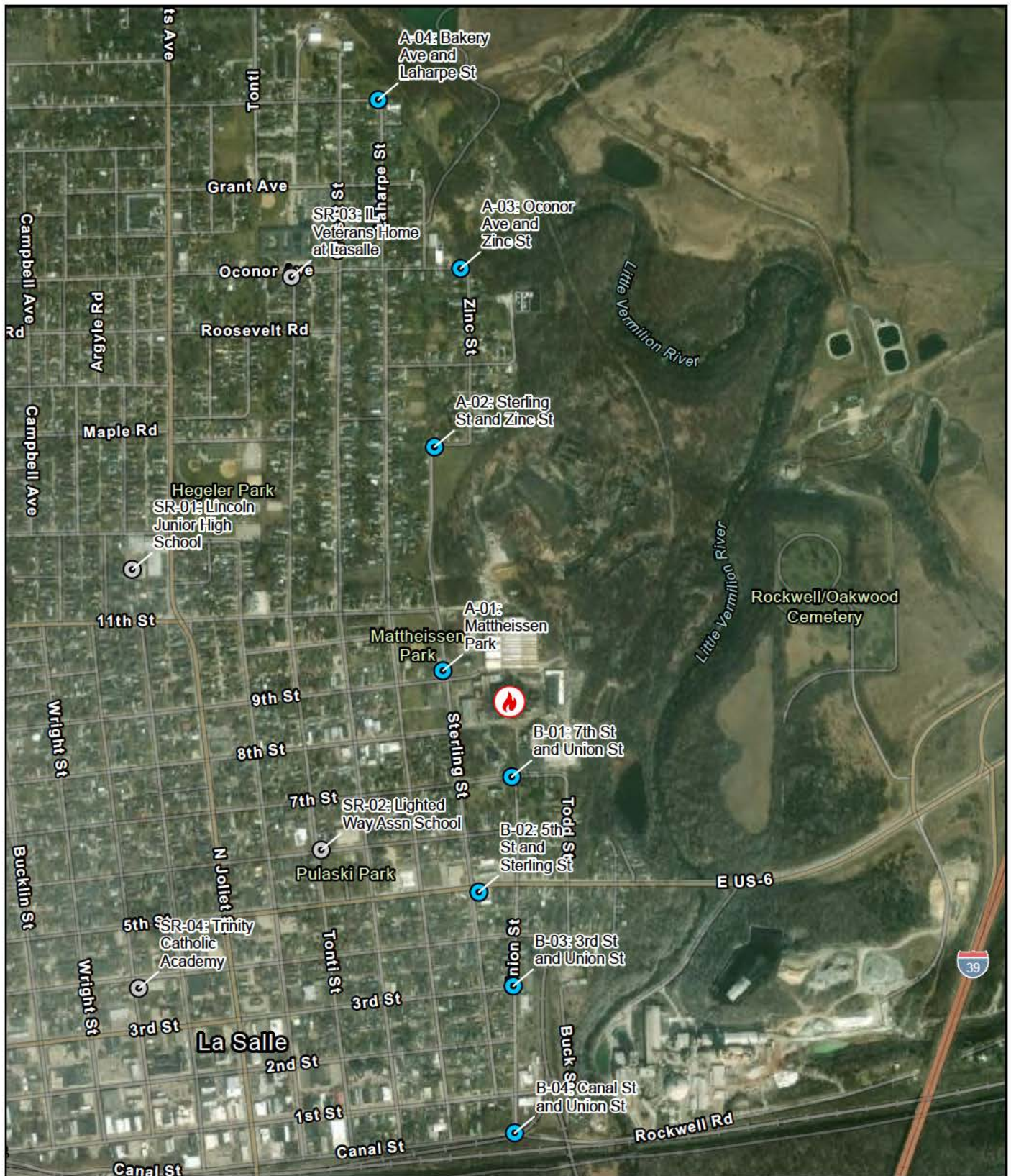
Prepared For US EPA

Prepared By Tetra Tech, Inc.



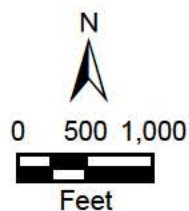






### Legend

- Fire Location
- Roaming Air Monitoring Locations**
- Location Type**
- Transect
- Sensitive Receptors



La Salle Chemical Fire - ER  
La Salle, La Salle, County, Illinois

**Figure 3**  
Roaming Air Monitoring Locations



## **APPENDIX B. TABLES – AIR MONITORING RESULTS SUMMARY**

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**Preliminary Air Monitoring Results Summary Table**  
**Monitoring Period: 01/11/2023 16:23 to 01/12/2023 6:03**  
**La Salle Chemical Fire Site Emergency Response**  
**La Salle, La Salle County, Illinois**

Location	Date/Time	O <sub>2</sub> (%)	LEL (%)	CO (ppm)	H <sub>2</sub> S (ppm)	VOC (ppm)	HCl (ppm)	PM <sub>10</sub> (mg/m <sup>3</sup> )	PM <sub>2.5</sub> (mg/m <sup>3</sup> )	HCN (ppm)	Cl <sub>2</sub> (ppm)
		Screening Levels <sup>1</sup>									
		19.5% to 23.5%	5%	25 ppm	10 ppm	0.5 ppm	2.5 ppm	2.5 mg/m <sup>3</sup>	2.5 mg/m <sup>3</sup>	5 ppm	0.5 ppm
A-01	1/11/2023 16:23	20.9	0.0	0.0	0.0	0.0	0.0	0.038	0.041	0.5	--
	1/11/2023 18:05	20.9	0.0	0.0	0.0	0.0	0.0	0.045	0.045	0.0	0.0
A-02	1/11/2023 16:48	20.9	0.0	0.0	--	0.0	0.0	0.035	0.035	0.0	--
	1/11/2023 18:32	20.9	0.0	0.0	0.0	0.0	0.0	0.050	0.052	0.0	0.0
A-03	1/11/2023 16:59	20.9	0.0	0.0	0.0	0.0	0.0	0.035	0.035	0.0	--
	1/11/2023 18:47	20.9	0.0	0.0	0.0	0.0	0.0	0.054	0.058	0.0	0.0
A-04	1/11/2023 17:10	20.9	0.0	0.0	0.0	0.0	0.0	0.039	0.039	0.0	--
	1/11/2023 18:59	20.9	0.0	15.0	0.0	0.0	0.0	0.065	0.067	0.0	0.0
	1/11/2023 19:27	--	--	0.0	--	--	--	--	--	--	--
B-01	1/11/2023 22:00	20.9	0.0	0.0	0.0	0.0	0.0	0.053	0.058	0.0	0.0
	1/12/2023 0:45	20.9	0.0	0.0	0.0	0.0	0.0	0.063	0.064	--	0.0
	1/12/2023 2:07	20.9	0.0	0.0	0.0	0.0	0.0	0.057	0.057	--	0.0
	1/12/2023 3:33	--	0.0	0.0	0.0	0.0	0.0	0.070	0.070	--	0.0
	1/12/2023 5:26	20.9	0.0	0.0	0.0	0.0	0.0	0.045	0.045	--	0.0
B-02	1/11/2023 22:31	20.9	0.0	0.0	0.0	0.0	0.0	0.052	0.050	0.0	0.0
	1/12/2023 0:54	20.9	0.0	0.0	0.0	0.0	0.0	0.062	0.063	--	0.0
	1/12/2023 2:17	20.9	0.0	0.0	0.0	0.0	0.0	0.060	0.060	--	0.0
	1/12/2023 3:48	20.9	0.0	0.0	0.0	0.0	0.0	0.087	0.087	--	0.0
	1/12/2023 5:33	20.9	0.0	0.0	0.0	0.0	0.0	0.042	0.042	--	0.0
B-03	1/11/2023 22:50	20.9	0.0	0.0	0.0	0.0	0.0	0.066	0.067	--	0.0
	1/12/2023 1:00	20.9	0.0	0.0	0.0	0.0	0.0	0.046	0.047	--	0.0
	1/12/2023 2:28	20.9	0.0	0.0	0.0	0.0	0.0	0.058	0.058	--	0.0
	1/12/2023 4:03	20.9	0.0	0.0	0.0	0.0	0.0	0.083	0.085	--	0.0
	1/12/2023 5:38	20.9	0.0	0.0	0.0	0.0	0.0	0.046	0.046	--	0.0
B-04	1/11/2023 23:05	20.9	0.0	0.0	0.0	0.0	0.0	0.051	0.052	--	0.0
	1/12/2023 1:06	20.9	0.0	0.0	0.0	0.0	0.0	0.055	0.055	--	0.0
	1/12/2023 2:36	20.9	0.0	0.0	0.0	--	0.0	0.1	0.1	--	0.0
	1/12/2023 4:11	--	0.0	0.0	--	0.0	0.0	0.083	0.083	--	0.0
	1/12/2023 5:43	20.9	0.0	0.0	0.0	0.0	0.0	0.034	0.034	--	0.0
SR-01	1/11/2023 19:40	20.9	0.0	0.0	0.0	0.0	0.0	0.054	0.057	0.0	0.0
SR-02	1/11/2023 23:39	20.9	0.0	0.0	0.0	0.0	0.0	0.068	0.082	--	0.0
	1/12/2023 1:29	20.9	0.0	0.0	0.0	0.0	0.0	0.065	0.065	--	0.0
	1/12/2023 2:58	20.9	0.0	0.0	0.0	0.0	0.0	0.065	0.070	--	0.0
	1/12/2023 4:44	20.9	0.0	0.0	0.0	0.0	0.0	0.073	0.074	--	0.0
	1/12/2023 6:03	20.9	0.0	0.0	0.0	0.0	0.0	0.040	0.040	--	0.0
SR-03	1/11/2023 19:31	20.9	0.0	0.0	0.0	0.0	0.0	0.044	0.050	0.0	0.0
SR-04	1/11/2023 23:28	20.9	0.0	0.0	0.0	0.0	0.0	0.051	0.056	--	0.0
	1/12/2023 1:17	20.9	0.0	0.0	0.0	0.0	0.0	0.053	0.053	--	0.0
	1/12/2023 2:48	20.9	0.0	0.0	0.0	0.0	0.0	0.1	0.1	--	0.0
	1/12/2023 4:33	20.9	0.0	0.0	0.0	0.0	0.0	0.071	0.080	--	0.0
	1/12/2023 5:54	20.9	0.0	0.0	0.0	0.0	0.0	0.040	0.040	--	0.0

Notes: See last page



**Preliminary Air Monitoring Results Summary Table**  
**Monitoring Period: 01/11/2023 16:23 to 01/12/2023 6:03**  
**La Salle Chemical Fire Site Emergency Response**  
**La Salle, La Salle County, Illinois**

Notes:

There were no detections above screening levels during the monitoring period (see above)

The fire was extinguished and smoldering by the evening hours of 1/11/2023

<sup>1</sup> The preliminary screening levels used are one half of the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL). OSHA PELs are regulatory limits on the amount or concentration of a substance in the air meant to protect workers against the health effects of exposure to hazardous substances. The OSHA PEL for Particulates Not Otherwise Regulated (PNOR) respirable fraction was used for PM<sub>10</sub> and PM<sub>2.5</sub>. The OSHA PEL for benzene was used for VOC measurements.

% - percent

Cl<sub>2</sub> - chlorine

CO - carbon monoxide

H<sub>2</sub>S - hydrogen sulfide

HCl - hydrogen chloride

HCN - hydrogen cyanide

LEL - lower explosive limit

mg/m<sup>3</sup> - milligrams per cubic meter

O<sub>2</sub> - oxygen

PM<sub>2.5</sub> - particles that are 2.5 micrometers and smaller

PM<sub>10</sub> - particles that are 10 micrometers and smaller

ppm - parts per million

VOC - volatile organic compounds

The maximum result measured at each location during the monitoring period 01/11/2023 16:23 to 01/12/2023 6:03 is shown in the table

**Preliminary Air Monitoring Results Summary Table**  
**Monitoring Period: 01/12/2023 08:35 to 01/12/2023 13:04**  
**La Salle Chemical Fire Site Emergency Response**  
**La Salle, La Salle County, Illinois**

There were no detections above screening levels during the monitoring period (see below) Air monitoring did not show any levels of concern The data below were taken at the fire site and in the surrounding community, following wind patterns EPA screened for known chemicals that were at the site and particulate matter from the fire The map shows the monitoring locations

Location	Date/Time	O <sub>2</sub> (%)	LEL (%)	CO (ppm)	H <sub>2</sub> S (ppm)	VOC (ppm)	HCl (ppm)	PM <sub>10</sub> (mg/m <sup>3</sup> )	PM <sub>2.5</sub> (mg/m <sup>3</sup> )	HCN (ppm)	Cl <sub>2</sub> (ppm)
		Screening Levels <sup>1</sup>									
		19.5% to 23.5%	5%	25 ppm	10 ppm	0.5 ppm	2.5 ppm	2.5 mg/m <sup>3</sup>	2.5 mg/m <sup>3</sup>	5 ppm	0.5 ppm
B-01	1/12/2023 8:35	20.9	0.0	0.0	0.0	0.0	0.0	0.038	0.038	0.0	0.0
	1/12/2023 10:10	20.9	0.0	0.0	0.0	0.0	0.0	0.017	0.017	0.0	0.0
	1/12/2023 11:07	20.9	0.0	0.0	0.0	0.0	0.0	0.016	0.016	0.0	0.0
	1/12/2023 12:08	20.9	0.0	0.0	0.0	0.0	0.0	0.010	0.010	0.0	0.0
B-02	1/12/2023 8:42	20.9	0.0	0.0	0.0	0.0	0.0	0.034	0.035	0.0	0.0
	1/12/2023 10:16	20.9	0.0	0.0	0.0	0.0	0.0	0.015	0.015	0.0	0.0
	1/12/2023 11:14	20.9	0.0	0.0	0.0	0.0	0.0	0.016	0.016	0.0	0.0
	1/12/2023 12:22	20.9	0.0	0.0	0.0	0.0	0.0	0.009	0.009	0.0	0.0
B-03	1/12/2023 10:31	20.9	0.0	0.0	0.0	0.0	0.0	--	--	0.0	0.0
	1/12/2023 11:22	20.9	0.0	0.0	0.0	0.0	0.0	0.016	0.016	0.0	0.0
	1/12/2023 12:53	20.9	0.0	0.0	0.0	0.0	0.0	0.015	0.015	0.0	0.0
B-04	1/12/2023 9:12	20.9	0.0	0.0	0.0	0.0	0.0	0.030	0.030	0.0	0.0
	1/12/2023 10:39	20.9	0.0	0.0	0.0	0.0	0.0	0.015	0.015	0.0	0.0
	1/12/2023 11:27	--	0.0	0.0	0.0	0.0	0.0	0.014	0.014	0.0	0.0
	1/12/2023 13:04	20.9	0.0	0.0	0.0	0.0	0.0	0.013	0.013	0.0	0.0
SR-02	1/12/2023 10:48	20.9	0.0	0.0	0.0	0.0	0.0	0.014	0.014	0.0	0.0
SR-04	1/12/2023 10:56	20.9	0.0	0.0	0.0	0.0	0.0	0.014	0.014	0.0	0.0

Notes:

The fire was extinguished on the morning of 1/12/2023

<sup>1</sup> The preliminary screening levels used are one half of the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL). OSHA PELs are regulatory limits on the amount or concentration of a substance in the air meant to protect workers against the health effects of exposure to hazardous substances. The OSHA PEL for Particulates Not Otherwise Regulated (PNOR) respirable fraction was used for PM<sub>10</sub> and PM<sub>2.5</sub>. The OSHA PEL for benzene was used for VOC measurements.

% - percent

Cl<sub>2</sub> - chlorine

CO - carbon monoxide

H<sub>2</sub>S - hydrogen sulfide

HCl - hydrogen chloride

HCN - hydrogen cyanide

LEL - lower explosive limit

mg/m<sup>3</sup> - milligrams per cubic meter

O<sub>2</sub> - oxygen

PM<sub>2.5</sub> - particles that are 2.5 micrometers and smaller

PM<sub>10</sub> - particles that are 10 micrometers and smaller

ppm - parts per million

VOC - volatile organic compounds

The maximum result measured at each location during the monitoring period 01/12/2023 08:35 to 01/12/2023 13:04 is shown in the table



## **APPENDIX C. PHOTOGRAPHIC DOCUMENTATION LOG**

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## PHOTOGRAPHIC LOG

### Photograph 1

**Date:** January 11, 2023

**Description:** Firefighter activity at the Carus Chemical Company facility.



### Photograph 2

**Date:** January 11, 2023

**Description:** Superfund Technical Assessment and Response Team (START) personnel monitoring air near the southern portion of the La Salle Chemical Fire site (the Site)

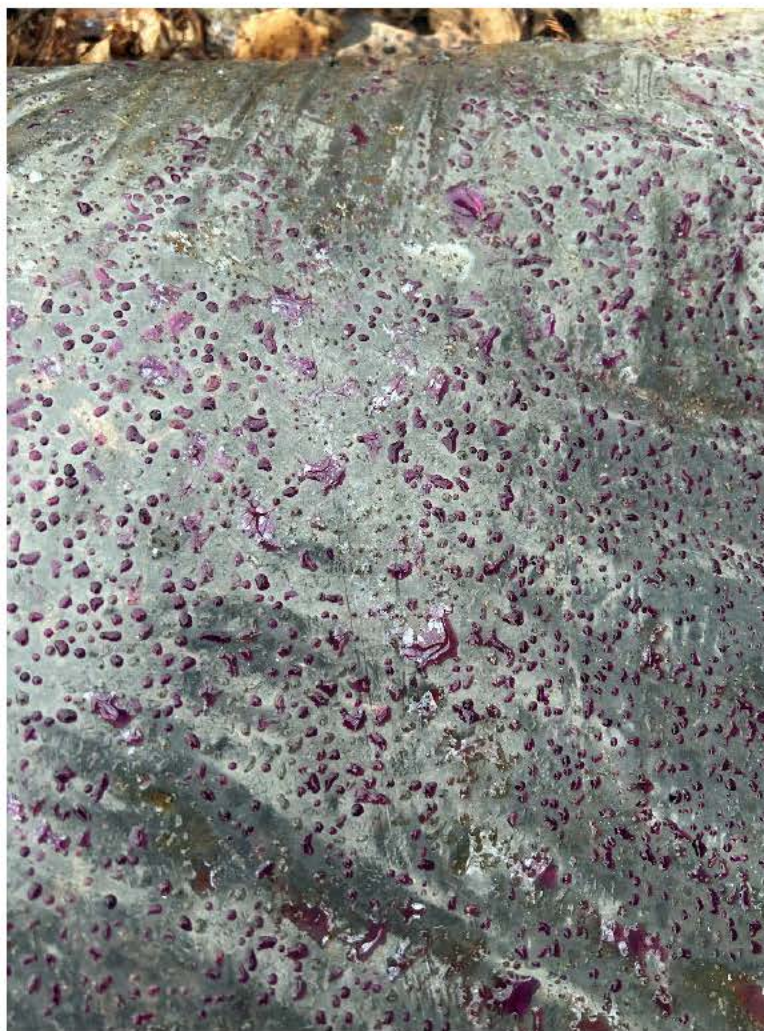




**Photograph 3**

**Date:** January 12, 2023

**Description:**  
Potassium  
permanganate deposits  
in a residential yard  
northwest of the Site



**Photograph 4**

**Date:** January 12, 2023

**Description:** View of  
the burned area at the  
Site





**Photograph 5**

**Date:** January 11, 2023

**Description:**  
Potassium  
permanganate deposits  
on a residential  
sidewalk northwest of  
the Site



**Photograph 6**

**Date:** January 12, 2023

**Description:**  
Potassium  
permanganate deposits  
on a pool in a  
residential yard  
northwest of the Site





**Photograph 7**

**Date:** January 12, 2023

**Description:**  
Potassium  
permanganate deposits  
on a resident's car  
northwest of the Site



**Photograph 8**

**Date:** January 12, 2023

**Description:** View of  
the Site after the fire  
was extinguished and  
fire departments  
demobilized



**Photograph 9**

**Date:** January 12, 2023

**Description:**  
Potassium  
permanganate deposits  
on a bucket in a  
residential yard  
northwest of the Site



**Photograph 10**

**Date:** January 11, 2023

**Description:**  
Potassium  
permanganate deposits  
on a residential mailbox  
northwest of the Site





**Photograph 11**

**Date:** January 13, 2023

**Description:** Burned area at the Site, which included the shipping warehouse where the fire started



**Photograph 12**

**Date:** January 13, 2023

**Description:** Puddles of water with potassium permanganate observed at the Site near the burned area





**Photograph 13**

**Date:** January 13, 2023

**Description:**  
Potassium permanganate observed in firefighting runoff, which pooled in a low-lying area approximately 250 feet east of the warehouse



**Photograph 14**

**Date:** January 13, 2023

**Description:** Water in the emergency containment pond at the Site after the fire was extinguished





**Photograph 15**

**Date:** January 13, 2023

**Description:** Outfall to the emergency containment pond for the Site



**Photograph 16**

**Date:** January 13, 2023

**Description:** Remaining debris within the burned area





## **APPENDIX D. START LOGBOOK FIELD NOTES**

---



*Rite in the Rain®*

ALL-WEATHER

**FIELD**

Nº 351FX

CARUS CHEMICAL FIRE ER

LOGBOOK #1/1

6

**RiteintheRain.com**



2 1/11/23

## CARUS CHEM FIRE

WEATHER: 54/34°F CLOUDY HUM 80%. WIND WSW 3 mph  
 1500 START A. ENRIGHT + H. FURNET ON SITE  
 AT CARUS CHEM. FIRE. EPA R. KONDREK  
 ON SITE. IEPA ON SITE. FIRE DEPT. SPRAYING  
 FIRE W/ SUPPRESSANT. APPEARS THEY ARE  
 SUITED UP IN LEVEL 3 FOR ENTRY. NO  
 VISIBLE SMOKE (NOT DARK) NO PUNGENT  
 ODOR. START WILL BEGIN AIR MONITORING  
 N OF THE FIRE ON TRASECT A PER OSC  
 REQUEST

1530 START ORGANIZING + CALIBRATING EQUIP.  
 SPM FLEX (MINERAL ACIDS TAPE FOR CAUSTIC  
 (HCl), HDX FOR PM, MULTIRAE FOR VOCs,  
 LEL, CO, H<sub>2</sub>S, HCN, O

1615 FIRST ROUND OF AIR MONITORING ROAMING  
 STARTED - TRASECT A

1620 FAINT SMOKE/CHEMICAL ODOR AT A01.  
 HCN READING FLUCTUATING 0.5-1 ppm  
 DOESNT SEEM ACCURATE

1630 MULTIRAE FRESH AIR CAL UPWIND -  
 HCN READINGS BACK DOWN TO 0 ppm

1700 FIRST ROUND OF AIR MON. ROAMING DONE  
 OSC REQUESTS START CONT ROAMING.  
 GAVE 3 ADDRESSES WHERE HOMEOWNERS  
 NOTED CONCERNING DEPOSITS/GREEN  
 MATERIAL - REQUESTED START ASSESS.

## CARUS CHEM FIRE

1/11/23

3

NO SAMPLING WAS TASKED

NOTE: FAINT CHEMICAL/SOURISH SMELL AT A03  
 UNCLEAR IF ITS SITE/FIRE RELATED.  
 LOCATION NEAR WHAT APPEARS TO BE  
 A JUNKYARD

1720 FIRST PROPERTY ASSESSED -  
 DARK (SMALL, SPECKLED) DEPOSITS SEEN  
 ON GROUND, CAR, ETC. NO GREEN  
 MATERIAL - INDIVIDUAL SPRAY WATER/  
 VINEGAR MIXTURE PREVIOUSLY ON  
 LAWN ETC ETC HE SAID HE DIDNT SEE  
 GREEN MATERIAL

1745 SECOND PROPERTY -  
 LOTS OF BROWN SMALL SPECKLED MATERIAL  
 ON GROUND, SURFACES - ALSO OILY AREAS  
 AROUND THE BROWN SPECS - ~~SP~~ ON  
 METALLIC MAIL BOX - NO GREEN MATERIAL

1800 THIRD PROPERTY -  
 AS OTHER 2 PROPERTIES.

START WILL RELEASE SUMMARY TABLES FOR  
 PUBLIC VIEWING TONIGHT + EVERY 12 HRS  
 STARTING TOM

1815 STARTING SECOND ROUND OF ROAMING  
 NOTE: NO DEPOSIT ON START VAN.  
 COMPLETING TRASECT A AGAIN W/  
 ADDITIONAL SPM FLEX W/ FL OXIDIZER



# 4/11/23 CARUS CHEMICAL FIRE

TAPE FOR CHLORINE

1920 ODDLY HIGH MULTIRAE CO READING

(15 ppm) START FRESH AIR CAL UNIT UPWIND

1930 RE-MONITORING A04. CO READING

0 ppm - CHANGED SURVEY FORM

1935 SECOND A TRANSECT COMPLETED, MOVING

TO SR03

1950 SR01 COMPLETED

2000 START N. BOYEA + J. SANDERS ON SITE.

MEETING W/ (R. KONDRECK) EPA OSC

START WILL CONT. LIGHT AIR ROAMING

LOCATIONS - WIND SHIFTED, NOW FROM N,

WILL PLAN TO W/ESAMPLE + POTENTIALLY

WATER SAMPLE TOM. POTENTIALLY LAST/ONLY

NIGHT FOR NIGHT OPS.

2100 START A. Enright & H. Fournet OFF SITE.

2145 EPA R. Kondreck OFF SITE.

2200 Transect B air roaming started.

2315 Transect B air roaming completed.

2330 SR04 air monitoring

2340 SR02 Lighted way air monitoring.

0030 Transect B air roaming started.

0115 SR04 Trinity Catholic Academy air monitoring.

~~0125~~ SR02 Lighted way air monitoring started.

0200 Transect B air roaming started.

0240 Transect B air roaming complete.

# 1/12/23 CARUS CHEMICAL FIRE

0245 SR04 air monitoring.

0255 SR02 air monitoring.

0330 Transect B air roaming started.

0420 Transect B air roaming completed.

0425 SR04 air monitoring.

0440 SR02 air monitoring.

0525 Transect B air roaming started.

0545 Transect B air roaming complete

0550 SR04 air monitoring

0600 SR02 air monitoring

0655 EPA R. Kondreck on site

0700 START A. Enright & H. Fournet on site

0730 START J. SANDERS + N. BOYEA OFF SITE

0730 OSC R. KONDRECK REQUESTS START

TO REVISIT 3 PROPERTIES FROM

YESTERDAY (PORTER, CROSBY, LAHARPE)

TO ASSESS STATUS OF DEPOSITS +

IDENTIFY ANY CHANGES. HF

ANTICIPATED ACTIVITIES: OSC KONDRECK

HAS ASKED START TO CONDUCT WATER

SAMPLING IN CARUS WASTEWATER

+ VERMILLION RIVER TO TEST FOR

PRESENCE OF POTASSIUM PERMANGANATE

+ OXIDIZED FORMS. WILL CONTINUE

AIR MONITORING AT TRANSECTS.

FIRE IS STILL SMOLDERING. HF

*Woke in the Rain*



1/12/23 CARUS CHEM FIRE  
6 WEATHER: 39/32°F CLOUDY HUM 97%, WIND N 15 mph

0740 START CHECKS DEPOSITS AT [REDACTED] MINIMAL BROWN SPOTS - APPEARS OWNERS HAVE SPRAYED DOWN YARD. SOME SPOTS ON GUTTER. NO VISIBLE DAMAGE, ONLY MINIMAL STAINING. HF

0745 [REDACTED]: MOST DEPOSITS HAVE BEEN SPRAYED DOWN BUT REMAINING SPOTS ON PLASTIC FILM APPEAR TO HAVE OXIDIZED INTO A PINK/PURPLISH COLOR.

0800 [REDACTED] HOMEOWNER DID NOT SPRAY SOLN OF WATER/VIN/H<sub>2</sub>O<sub>2</sub> PEROXIDE BROWN SPLOTCHES OBSERVED YESTERDAY TURNED TO PINK - SURFACES ARE DAMP FROM DEW/HUMIDITY. HOMEOWNER SAID HIS CAR WAS COVERED IN THE BROWN DEPOSITS. HE SPRAYED WINDSHIELD + MA W/ FLUID + MATERIAL TURNED A GREEN/A BROWN COLOR. POOL WAS AFFECTED - WAS VERY PINK - NOW FADED INTO A GREEN/BROWN. UNCLEAR HOW GREEN IT WAS BEFORE. PINK APPEARING ON PLASTIC + METAL - NOT THE GROUND/GRASS

0825 START CALIBRATING EQUIPMENT TO BEGIN AIR MON. DOWN WIND - TRASECT B

0835 BOI - STRONG SMOKE ODOR, CLOSE TO FACILITY ENTRANCE - FIRE STILL SMOLDERING

1/12/23 CARUS CHEMICAL FIRE

0930 TRASECT B COMPLETED  
0955 START CALL - WORKING ON LABS FOR WATER + WIPE SAMPLES, TRYING TO DETERMINE A WIPE SAMPLE PROCEDURE FOR POTASSIUM PERMANGANATE + OXIDIZED FORMS. C. RENNER DRIVING DOWN EQUIP. (PEDS + WIPE SAMPLING SUPPLIES + HAZCAT KIT W/ TEST STRIPS)

1005 START CONT. AIR MONITORING ON TRASECT B SLIGHT SMOKE ODOR AT BOI

1020 QAC KONARECK REQUESTS START CONT. AIR MONITORING AT LOCATIONS. WAITING TO HAVE MEETINGS TO DECIDE WHAT/IF SAMPLING WILL OCCUR

1115 SRO1 + SRO2 W/ AIR MONITORING EQUIP. COMPLETED TRASECT B

1120 START RETURNS TO [REDACTED] - NO CLEAR CHANGES TO CONDITIONS / DEPOSITED MATERIAL REMAINS BROWN. NO HOLES IN MATERIALS

1130 START AT [REDACTED] SIMILAR COND TO EARLIER - EARLIER. PLASTIC W/ PINK MATERIAL WAS REMOVED DURING TRASH COLLECTION.

1140 START AT [REDACTED] - PINK MATERIAL OBSERVED EARLIER CHANGED BACK TO BROWN. POOL NO LONGER A PINKISH



## 1/12/23 CARUS CHEMICAL FIRE

GREEN HUE. DEPOSITED MATERIAL ON THE GROUND/DRIVEWAY REMAINS SIMILAR TO PREVIOUS STATE. NO CORROSION OBSERVED. NEAR MRS. SMALL DOG GOT OUT OF HOUSE - ACTING VERY AGGRESSIVE

1210 NEW ROUND OF AIR MONITORING - TRANSECT B. NO SMOKE ODOR AT BOI. WIND NOW NNW 17 mph

1300 EPA ANTICIPATES WE WILL HAND OFF AIR MONITORING TO CARUS ENV. CONTRACTOR TODAY - THEY WILL CONT. W/ PERIMETER MONITORING. START WILL MEET W/ HEPACO TO ENSURE THEY'RE USING THE SAME PARAMETERS. START MAY CONDUCT FENCE-LINE MONITORING

1330 TRANSECT B COMPLETE. C. RENNER ON SITE W/ HAZCAT KITS + PFDs, ETC.

1400 TESTING DEPOSITED MATERIAL - SCRAPED MATERIAL FROM SURFACES TESTED w/ OXIDIZER TAPE. MATERIAL REACTED - DARK BLUE/PURPLE COLOR

1500 C. RENNER OFFSITE. START N. BOYEA + J. SANDERS ON SITE. WILL DETERMINE IF THEY WILL DEMOB OR STAY ON FOR NIGHT OPS -

1530 DISCUSSED W/ EPA OSC KONDRECK: FIRE OFFICIALLY OUT AT 12:30 - HANDED

## 1/12/23 CARUS CHEMICAL FIRE

BACK TO THE FACILITY TO CARUS. —

HEPACO (CARUS' ENVIRONMENTAL CONTRACTOR) WILL TAKE OVER AIR MONITORING AT THE FACILITY PERIMETER/FENCE LINE. START WILL MEET W/ HEPACO TO DISCUSS AIR MONITORING PLAN/GOALS. ILLINOIS EPA WILL CONDUCT WIPE SAMPLING, RIVER WATER + WASTEWATER SAMPLING, + POSSIBLY SOIL SAMPLING @

AFFECTED PROPERTIES. START WILL NOT BE TASKED W/ SAMPLING. — NIGHT OPS (START J. SANDERS + N. BOYEA) DISCHARGED. START H. FOURNET +

A. ENRIGHT WILL REMAIN ON SITE TO COLLECT DOCUMENTATION + OVERSEE HEPACO. REMOVAL ACTIVITIES WILL BE CONDUCTED AT THE FACILITY - A RETENTION POND W/ 200,000 GAL OF RUNOFF WILL BE PUMPED INTO FRAC TANKS/VAC TRUCKS FOR DISPOSAL/TREATMENT

1800 START IS ASSISTING EPA W/ PUTTING TOGETHER INCIDENT TRANSITION PLAN AND RESPONSE.GOV WEBSITE. —

2000 START + EPA OFFSITE. —



12/13/23 CARUS CHEMICAL FIRE

0730 START (H. FOURNET + A. ENRIGHT)  
ONSITE (24/32°F, 12 mph S, 70% HUMIDITY)  
0800 EPA (P. RUESCH, R. KONDRECK) ONSITE.  
0815 START WORKING ON AIR MONITOR-  
ING SUMMARY TABLES, LETTER REPORT,  
PHOTOLOG, ETC.

0845 ANTICIPATED ACTIVITIES: START +  
EPA WILL CONDUCT A SITE WALK  
TOGETHER TO COLLECT DOCUMENT-  
ATION OF SITE + FIRE RUINS.  
EXPECTED TO BE COMPLETELY  
OFFSITE BY EARLY AFTERNOON.

1100 REPORTS OF PINK/PURPLE SNOW -  
START REVISITS  
TO ASSESS THESE CLAIMS. REMAINING  
DEPOSITS ARE PRIMARILY BROWN.  
MINIMAL PINK SNOW OBSERVED.  
ONE SPOT OF PINK WHERE SNOW  
HAD MELTED.

1200 SITE WALK WITH EPA, CARUS, DNR.  
OBSERVED FIRE RUINS, RETENTION PONDS,  
PURPLE  $\text{KMnO}_4$  ON GROUND + IN PONDS.  
STORAGE FACILITIES CONTAINING SOLID  
FORMS OF  $\text{KMnO}_4$  BURNED. ANOTHER  
BLDG CONTAINING LIQUID FORM OF  
SODIUM PERMANGANATE + A

12/13/23 CARUS CHEMICAL FIRE

CATALYST WERE NOT AFFECTED.  
CARUS CONTRACTORS WILL PUMP  
CONTAMINATED WATER OUT OF RETENT-  
ION PONDS + COLLECT SOIL SAMPLES  
FROM BOTTOM OF PONDS. 2 PONDS -  
UPPER<sup>(1)</sup> + LOWER<sup>(2)</sup>. UPPER POND<sup>(1)</sup> VISIBLY  
PURPLE, AFFECTED W/  $\text{KMnO}_4$ ; LOWER  
POND DID NOT APPEAR TO BE AFFECTED.  
UPPER POND (AFFECTED) HAS A NPDES PERMIT<sup>(2)</sup>  
BUT IS TYPICALLY DRY. LOWER POND HAS  
2 OUTFALLS INTO THE VERMILION  
RIVER, WHICH IT IS ADJACENT TO. OUTFALLS  
ARE CLOSED. THIRD POND<sup>(3)</sup> AT HIGHEST  
LEVEL (SAME LVL AS CARUS FACILITIES) HAS  
NOT BEEN USED IN 20+ YRS, BUT ~~IT~~ <sup>IT</sup>  
RUNOFF ACCUMULATED IN IT + IS VISIBLY  
CONTAMINATED. BERM CONSTRUCTED W/  
SAND TO CONTAIN WATER. ADDTL BERM  
CONSTRUCTED TO DIRECT FLOW OF  
RUNOFF INTO UPPER POND (1). ~~(POND 2)~~ /  
~~LOW~~ (POND 1) - UPPER IS THE EMERGENCY  
CONTAINMENT POND. (2) LOWER POND WAS  
NOT VISIBLY IMPACTED. HISTORICALLY  
USED CONTAINMENT POND NEAR BUILDINGS  
IS ~250 FT FROM BURN AREA) LASALLE  
CHEMICAL FIRE WILL NOW GO INTO <sup>into the rain</sup>

THE REMOVAL STAGE. NOTE: UPON SITE  
WALK - PURPLE-COLORED WATER STILL  
OBSERVED ACTIVELY FLOWING FROM THE  
SITE - INTO THE UPPER (1) POND / EMERG-  
ENCY CONTAINMENT POND

1400 START OFFSITE - DEMOBILIZED

AE



## **ATTACHMENT 1. INTERAGENCY MODELING AND ATMOSPHERIC ASSESSMENT CENTER REPORTS**

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# IMAAC

## Interagency Modeling and Atmospheric Assessment Center

### REAL WORLD

## *Fire at 1500 8<sup>th</sup> Street, La Salle, IL*

*(RFI 23-0013aU)*

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# Request Summary

Requestor	Corey Peaslee, EPA Region 5
Contact information	312-919-4382 and 312-758-0604 Peasele.corey@epa.gov
Request	Model the ongoing fire at 1500 8 <sup>th</sup> Street, La Salle, IL
Employment	Real World
Hazards	<ul style="list-style-type: none"><li>• Soot from a fire at Carus Chemical Plant</li></ul>
Location	La Salle, IL Coordinates: 41.337145° N/89.086494° W)
Weather	High Resolution Numerical Weather Prediction: 3 km NAM from NCEP (CONUS)
Incident Date & Time	11JAN2023 1500Z (0900 Local)
Executive Summary	<ul style="list-style-type: none"><li>• The soot from the fire is modeled to go in NW for a distance of approx. 600 meters.</li><li>• Outputs are provided each 6 hours to 24 hours.</li><li>• A 6 hour cumulative dosage footprint is provided on slide 7. This footprint illustrates the general area of concern, and does not necessarily indicate adverse health effects unless that person is assumed to be standing still for 6 hours.</li></ul>



# Modeling Assumptions

- Soot production from the burning material is modeled and represented in the following slides.
- Hazards from any specific chemical releases are not accounted for in this product, unless it is known a specific chemical is stored on site.
- There appears to be permanganates and possibly chlorine at the facility. The chlorine appears to be in the form of hypochlorite, which is unlikely to be a major downwind hazard (depending on quantities present). The permanganates are also unlikely to be a major airborne hazard, but could accelerate the fire.
- It is assumed the fire continues ongoing to 1500Z 12JAN.
- The area of the burn is modeled to be small fire. This will primarily affect the shape of the vertical profile.
- Modeling assumes the fire is burning at a fixed rate, beginning at 1500Z until the time shown in the plots.
- Dosage plots are shown to provide the health hazard in the area. Transmission and vertical concentration plots are provided to model the vertical profile of the visual smoke.
- Current status of the fire is unknown, but appears to have diminished compared to earlier in the day.





# Wind Shifts

- Winds are currently from southerly directions (i.e., blowing from S to N)
- Winds should shift to westerly directions (blowing W to E) sometime in the 4 – 5 PM timeframe.
- Winds will shift to out of the NW about 6 PM, give or take an hour, then from due N by about midnight.
- Winds from the N should continue until mid-morning tomorrow.



# Soot – Surface Dosage – 1500 CST

Hazard: Chemical Plant Fire (explosion)  
Coordinates: 41.337145° N/89.086494° W)  
LaSalle, IL, USA  
DTG: 11JAN2023 1500Z

**Soot Surface Dosage**  
**Exposure: 6 hours (1500Z – 2100Z)**

**Hazardous**

**Very Unhealthy**

**Unhealthy**

**Population Within Contours**

Hazardous	4
Very Unhealthy	6
Unhealthy	15

This footprint illustrates the general area of concern, and does not necessarily indicate adverse health effects unless that person is assumed to be standing still for 6 hours.







# Soot – Surface Dosage – 2100 CST

Hazard: Chemical Plant Fire (explosion)  
Coordinates: 41.337145° N/89.086494° W)  
LaSalle, IL, USA  
DTG: 11JAN2023 1500Z

**Soot Surface Dosage**  
**Exposure: 12 hours (1500Z – 0300Z 12JAN)**

**Hazardous**

**Very Unhealthy**

**Unhealthy**

**Population Within Contours**

Hazardous	4
Very Unhealthy	6
Unhealthy	15

This footprint illustrates the general area of concern, and does not necessarily indicate adverse health effects unless that person is assumed to be standing still for 12 hours.



0 250 500 1000 1500 2000 2500  
Meters





# Soot – Surface Dosage – 0300 CST 12JAN

Hazard: Chemical Plant Fire (explosion)  
Coordinates: 41.337145° N/89.086494° W)  
LaSalle, IL, USA  
DTG: 11JAN2023 1500Z

**Soot Surface Dosage**  
**Exposure: 18 hours (1500Z – 0900Z 12JAN)**

**Hazardous**

**Very Unhealthy**

**Unhealthy**

**Population Within Contours**

Hazardous	4
Very Unhealthy	6
Unhealthy	15

This footprint illustrates the general area of concern, and does not necessarily indicate adverse health effects unless that person is assumed to be standing still for 18 hours.







# Soot – Surface Dosage – 0900 CST 12JAN

Hazard: Chemical Plant Fire (explosion)  
Coordinates: 41.337145° N/89.086494° W)  
LaSalle, IL, USA  
DTG: 11JAN2023 1500Z

## Soot Surface Dosage Exposure: 24 hours (1500Z – 1500Z 12JAN)

Hazardous

Very Unhealthy

Unhealthy

### Population Within Contours

Hazardous	4
Very Unhealthy	6
Unhealthy	15

This footprint illustrates the general area of concern, and does not necessarily indicate adverse health effects unless that person is assumed to be standing still for 24 hours.



0 250 500 1000 1500 2000 2500 Meters



# Soot – Surface Dosage

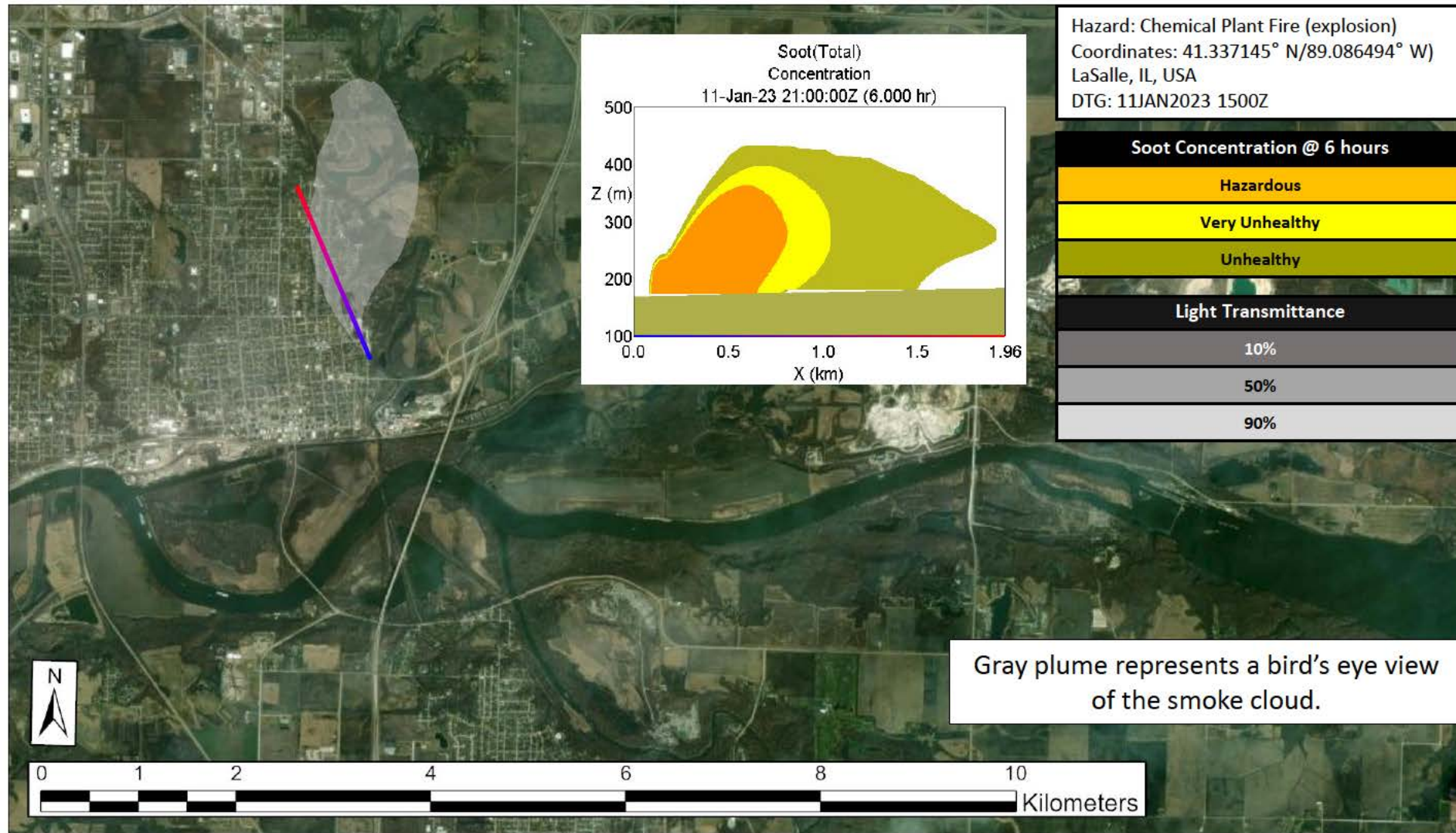
Value	Description
<b>Hazardous</b>	Serious aggravation of heart or lung disease and premature mortality in people with cardiopulmonary disease and older adults; serious risk of respiratory effects in general population. Everyone should avoid all physical activity
<b>Very Unhealthy</b>	Significant aggravation of heart or lung disease and premature mortality in people with cardiopulmonary disease and older adults; significant increase in respiratory effects in general population. People with heart or lung disease, older adults, and children should avoid all physical activity outdoors; everyone else should avoid prolonged or heavy exertion.
<b>Unhealthy</b>	Increased aggravation of heart or lung disease and premature mortality in people with cardiopulmonary disease and older adults; increased respiratory effects in general population. People with heart or lung disease, older adults, and children should avoid prolonged or heavy exertion; everyone else should reduce prolonged or heavy exertion.

Cumulative dosage values based on exposure to 2.5um particulate matter. Concentration values and descriptions taken from Pollutant-Specific Sub-indices and Health Effects Statements and Cautionary Statements for Guidance on the Air Quality Index tables, in Guidelines for Reporting of Daily Air Quality – Air Quality Index (AQI), USEPA, EPA-454/B-06-001, May 2006.





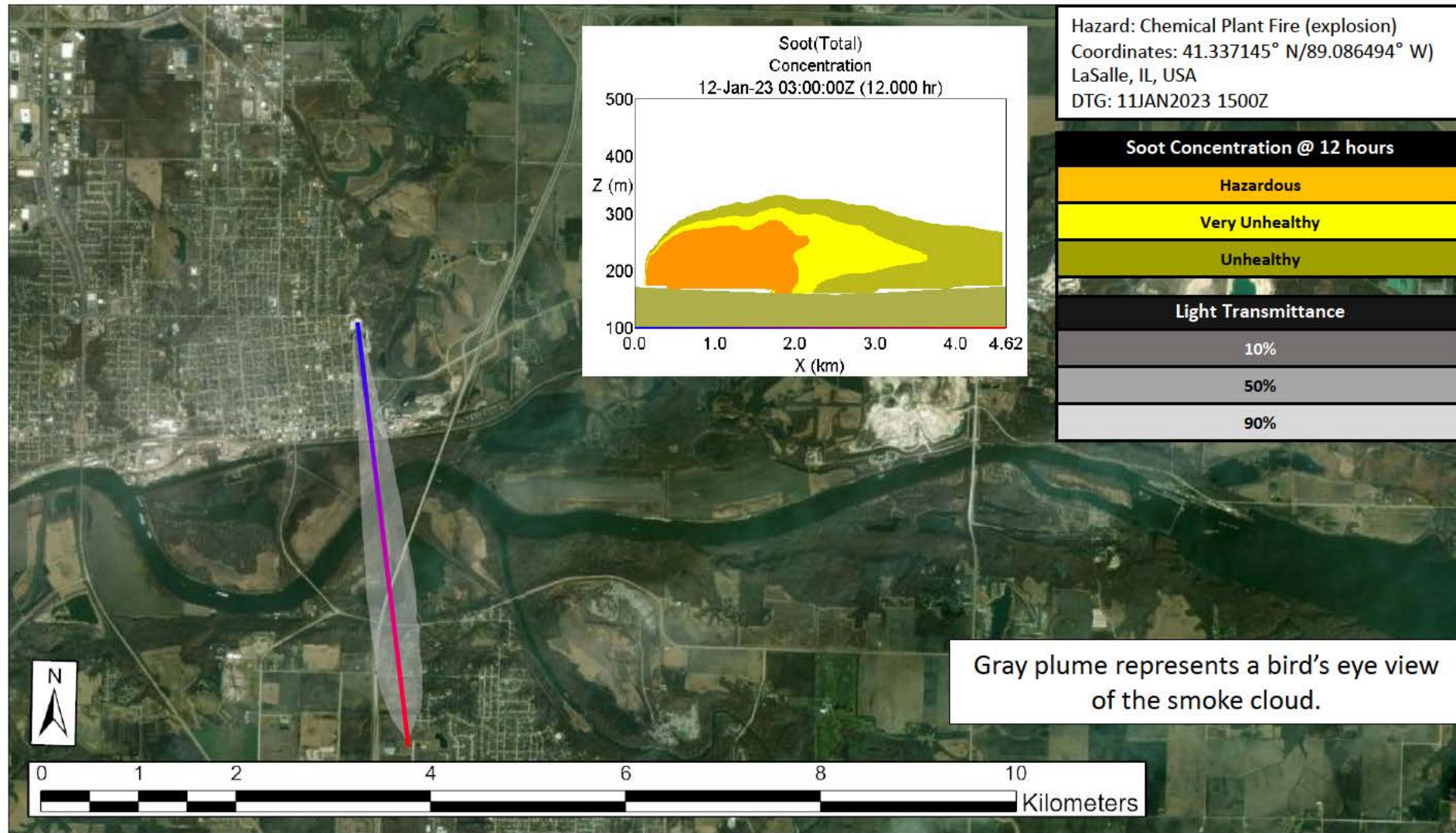
# Soot – 1500 CST – Vertical Profile







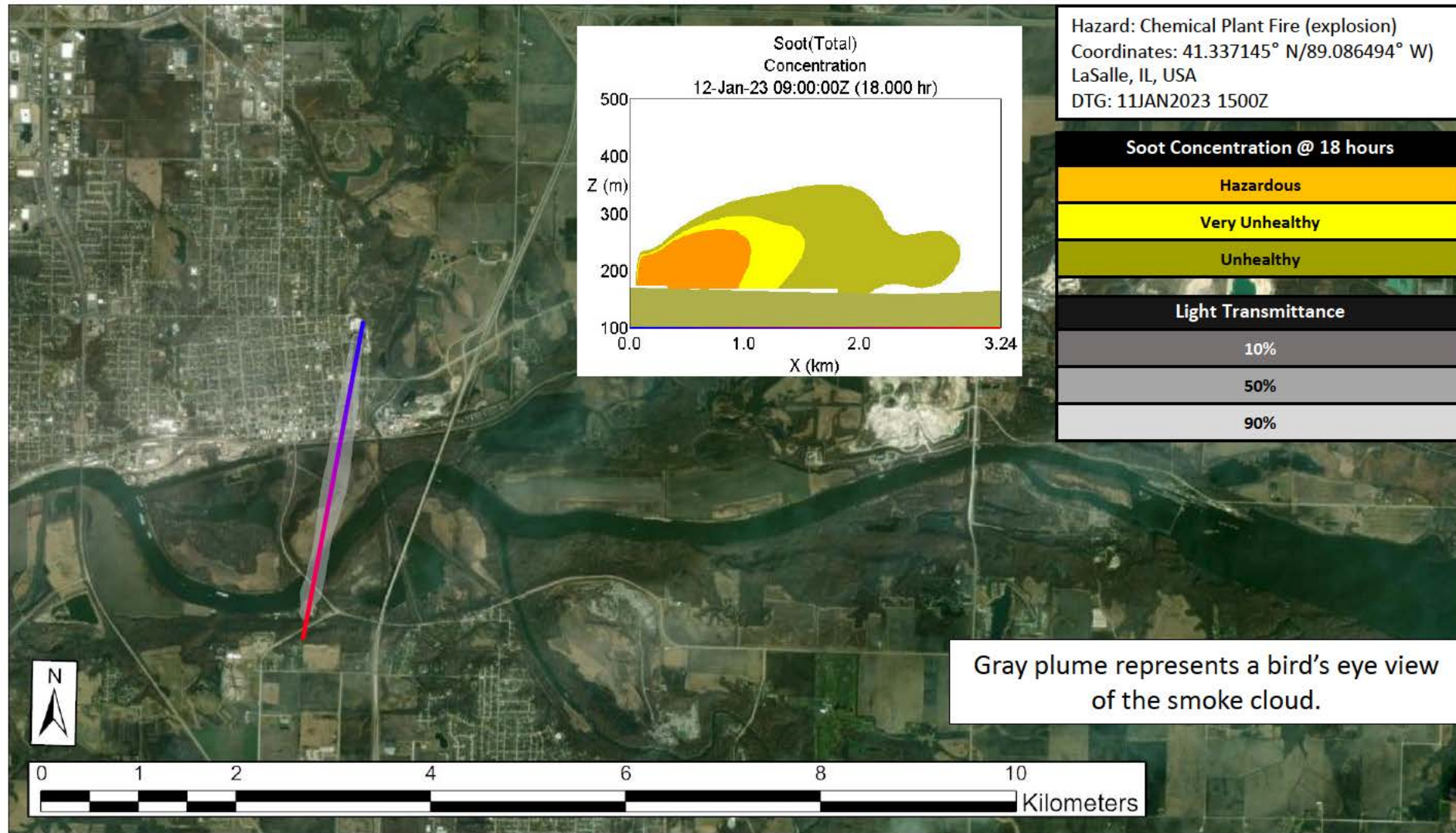
# Soot – 2100 CST – Vertical Profile







# Soot – 0300 CST 12JAN – Vertical Profile







# Soot – 0900 CST 12JAN – Vertical Profile

